

REMARKS

In the outstanding Final Office Action, the Examiner allowed claims 3-5, 9, 12, 14, 16, 18, 20, and 22¹; and rejected claims 1, 2, 6-8, 10-11, 13, 15 and 17 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,744,398 to Byun et al. ("Byun") in view of U.S. Patent No. 5,654,242 to Komatsu ("Komatsu"), U.S. Patent No. 5,569,624 to Weiner ("Weiner"), and U.S. Patent Publication No. US 2005/0142818 A1 to Nakamura et al. ("Nakamura"). Claims 1-18, 20, and 22 remain pending.

I. Request for the Withdrawal of the Finality of the Rejection

In regard to the finality of the rejection, at pages 2 and 4 of the Office Action, the Examiner asserts that "Applicant has amended to include the limitation 'primarily visible light'" and "Applicant's amendment necessitated the new grounds of rejection."

Applicants respectfully disagree. As stated in the M.P.E.P.:

[a] second or any subsequent action on the merits in any application ... should not be made final if it includes a rejection, on prior art not of record, of any claim amended to include limitations which *should reasonably have been expected to be claimed*.

M.P.E.P. § 706.07(a), 8th Ed. (Rev. 2), May 2004 (emphasis added). Claims 19 and 21, now canceled, recited a combination including "substantially visible light," and depended from claims 1 and 6, respectively. Accordingly, the element "primarily visible light" added to claims 1 and 6 is an element which the Examiner "should reasonably have been expected to be claimed." Therefore, we believe that the Examiner has introduced a new ground of rejection, and finality of the rejection is premature.

¹ The Office Action apparently inadvertently fails to address the status of claims 20 and 22. Since these claims depend from allowed claims 16 and 18, respectively, Applicants assume that the Examiner intended to allow claims 20 and 22 as well.

Accordingly, Applicants respectfully request that the finality of the rejection be withdrawn.

II. Allowable Subject Matter

Applicants gratefully acknowledge the Examiner's allowance of claims 3-5, 9, 12, 14, 16, 18, 20, and 22.

III. Rejection under 35 U.S.C. § 103(a)

Applicants respectfully traverse the Examiner's rejection of claims 1, 2, 6-8, 10-11, 13, 15, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Byun in view of Komatsu, Weiner, and Nakamura. To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. M.P.E.P. §2143.03. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." M.P.E.P. § 2143. At a minimum, the Examiner cannot establish that the references teach each and every element of the claimed combination. See M.P.E.P. §§ 2143.01 & 2143.03.

With respect to the Examiner's rejection of independent claim 1, the references, whether taken alone or in combination fail to teach or suggest the claimed combination including "heat[ing] said silicide film ... to control a work function of said silicide film," as recited in claim 1.

As stated by the Examiner, "Byun, et al is silent with respect to the control of the work function." Office Action, page 2. Komatsu fails to cure at least this deficiency of Byun.

The Examiner characterizes Komatsu as teaching "the control of the work function of a tungsten silicide gate in a CMOS device by implantation and heat treatment of the silicide gate." Office Action, page 3. Komatsu, however, teaches that "the work function of each gate electrode of the nMOS and the pMOS of the second embodiment was changed by ion implantation." Komatsu, col. 12, lines 9-11 (emphasis added). Accordingly, in contrast to the Examiner's characterization, Komatsu teaches control of the work function through ion implantation, not heating.

Komatsu further teaches that heating causes "fluctuations in the work function," and thus Komatsu teaches away from "heat[ing] said silicide film ... to control a work function," as recited in claim 1. Komatsu, col. 13, lines 45-48. Applicants respectfully note that it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983). Accordingly, Komatsu not only fails to teach or suggest the claimed "heat[ing] said silicide film ... to control a work function of said silicide film," as recited in claim 1, but also teaches away from it.

Moreover, neither Weiner nor Nakamura teach or suggest "heat[ing] said silicide film ... to control a work function of said silicide film," as recited in claim 1, and are not relied upon by the Examiner for such teachings. Accordingly, because the applied references fail to teach each and every element of claim 1, a *prima facie* case of

obviousness has not been established, and Applicants respectfully request the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn.

Furthermore, claims 2, 11, and 15 depend from claim 1, and thus require all of the elements of claim 1. Since the applied references fail to teach each and every element of claim 1, they also fail to teach each and every element required by the dependent claims. Accordingly, Applicants respectfully request the rejection of claims 2, 11, and 15 under 35 U.S.C. § 103(a) be withdrawn.

Claim 6, while of different scope, recites elements similar to those recited in claim 1. For example, claim 6 recites "heat[ing] said silicide film ... to control a work function of said silicide film." Accordingly, claim 6 is allowable at least for reasons discussed above in regard to claim 1.

In addition, the applied references, whether taken alone or in combination fail to teach or suggest the claimed combination including "forming first conductive type and second conductive type wells for making first conductive type and second conductive type metal insulator field transistor regions surrounded by said element isolation regions," and "forming gate insulation films on said first conductive type and second conductive type metal insulator gate field effect transistor regions," as recited in claim 6. Applicants respectfully notes that the Office Action does not address these features of claim 6, and thus claim 6 is allowable for this additional reason.

Moreover, Byun discloses forming source and drain regions in a substrate but does not disclose any wells. See, for example, Figs. 2(a)-2(e). Accordingly, Byun fails to teach or suggest at least "forming first conductive type and second conductive type wells for making first conductive type and second conductive type metal insulator field

transistor regions surrounded by said element isolation regions,” (emphasis added) and “forming gate insulation films on said first conductive type and second conductive type metal insulator gate field effect transistor regions,” as recited in claim 6.

Komatsu, Weiner, and Nakamura fail to cure the above-noted deficiencies of Byun. Komatsu is apparently cited for teaching “the control of the work function of a tungsten silicide gate in a CMOS device by implantation and heat treatment of the silicide gate.” Office Action, page 3. Weiner is relied upon allegedly for teaching “the equivalence of furnace heating with rapid thermal anneal,” and “the use of laser anneal.” Office Action, page 3, and Nakamura is apparently relied upon for teaching that “YAG laser is a visible light laser,” and “YAG laser annealing.” Office Action, page 3. None of these references, however, overcome the above-noted deficiencies of Byun.

Specifically, Komatsu teaches forming a single p-well 2 (see Figure 5B), not first and second wells, and both Weiner and Nakamura are silent as to forming wells altogether. Thus, Komatsu, Weiner, and Nakamura fail to teach or suggest at least “forming first conductive type and second conductive type wells for making first conductive type and second conductive type metal insulator field transistor regions surrounded by said element isolation regions,” (emphasis added) and “forming gate insulation films on said first conductive type and second conductive type metal insulator gate field effect transistor regions,” as recited in claim 6.

Because the references fail to teach or suggest each and every element recited in claim 6, the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, Applicants respectfully request that the rejection of claim 6 under 35 U.S.C. § 103(a) be withdrawn as well.

Furthermore, claims 7, 8, 10, 13, 17 and 21 depend from claim 6, and thus require all of the respective elements of claim 6. Since the references fail to teach each and every element of claim 6, the references also fail to teach each and every element required by the dependent claims. Accordingly, Applicants respectfully request the rejection of claims 7, 8, 10, 13, 17 and 21 under 35 U.S.C. § 103(a) be withdrawn.

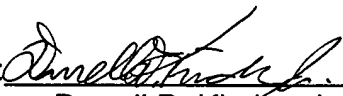
In view of the foregoing remarks, Applicants submit that this claimed invention, is not rendered obvious in view of the prior art references cited against this application. Applicants therefore request the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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